

SOME NOTES ON THE LARVAL HABITS OF THE  
PIGMY FOOTMAN, *EILEMA PYGMAEOLA*  
(DOUBLEDAY) SUB-SPECIES *PALLIFRONS* (ZELLER)  
(LEP.: ARCTIIDAE) AND A DESCRIPTION OF  
THE PUPA

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Introduction

*Eilema pygmaeola* is a highly localised British species represented by two sub-species which exhibit preferences for different habitat types. *Eilema pygmaeola pygmaeola* (Doubleday) frequents sand dunes at a small number of stations on the Kent and Norfolk coasts, whereas *E. pygmaeola pallifrons* (Zeller) is resident only on the shingle at Dungeness, Kent. Little of the life history of either sub-species has been recorded although Buckler (1889) describes the egg and larva. Records of wild-caught larvae in Britain seem to be restricted to a report by Packer (1979) although many entomologists who sweep at Dungeness must be familiar with the small, furry, brown larvae which are often to be found in large numbers at night in the spring. Records of pabulum preference in captivity may indicate the natural pabulum of *E. pygmaeola pallifrons* but until larvae are recorded from lichens in the wild this will be speculative. With the number of recorders who visit Dungeness each year, it should be possible to establish the natural pabulum of this insect.

In an attempt to fill some of the gaps in our knowledge, the habits of sub-species *pallifrons* have been under investigation for the past two years following successful breeding of larvae taken at Dungeness in 1982.

Habitat

The description of larval breeding grounds necessitates a brief description of the Dungeness ecosystem. Sampling of larvae has, to date, been restricted to the area immediately north and east of the "Long Pond" (fig. 1) and it is this area which is described.

Sallow scrub dominates much of the shingle, providing shelter but very little associated under-cover. Open areas between patches of sallow scrub are dominated by bramble (*Rubus fruticosus* agg.) with wood sage (*Teucrium scorodonia*) and broom (*Sarothamnus scoparius*) forming distinct patches. Elsewhere, grasses and low-growing herbaceous plants form a loose cover which, in places consolidates to form continuous cover. Lichens are a dominant feature of the low-growing vegetation and, in some areas, form a continuous mat over the shingle. Brief examination of the lichen mat revealed the presence of four species: *Cladonia arbuscularia*,

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*C. chlorophaea*, *C. convoluta* and *C. rangiformis*. Concrete posts in the area are well covered with encrusting lichens (*Xanthoria* spp).

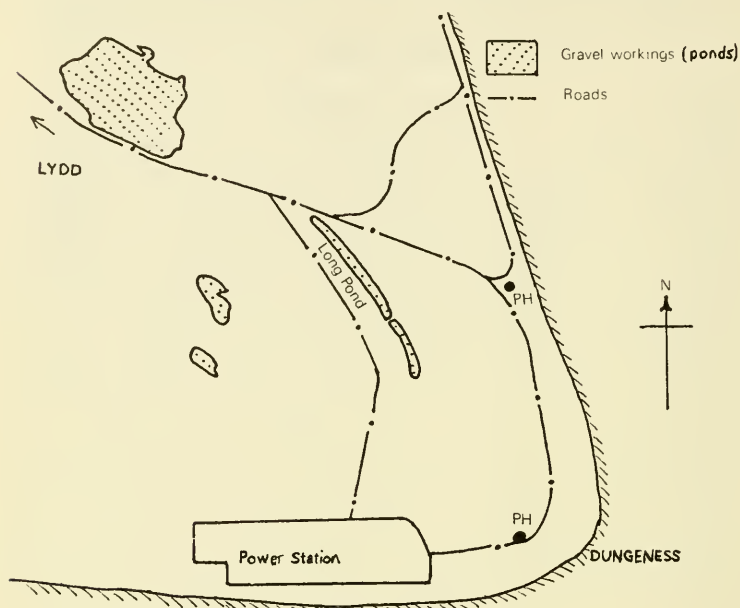


Figure 1. Schematic map of Dungeness, Kent.

### Larval distribution

The highest concentrations of larvae are to be found in areas where grasses and lichens are intermixed, forming a loose, often discontinuous, mat. Like others of the genus *Eilema*, *pygmaeola* is lichenivorous and it is therefore surprising that larvae can be swept from grasses. Careful searching revealed the reason for this: at night, the larvae ascend blades of grass to sit motionless for reasons as yet undetermined. In mid-April, larvae were swept from dead grasses. However, searching in mid-June revealed larvae only on living blades of grass. To date, it has not been possible to simulate natural conditions for captive larvae and, consequently, a completely adequate explanation of this behaviour cannot be given. However, the habits of captive larvae may provide a clue. The larvae were reared in standard clear plastic containers whose atmosphere, although ventilated as often as possible, tended to become very humid. Under such conditions, many larvae spent a considerable amount of time on the under surface of the container lid. This, I suggest, may be an attempt to reach a less humid environment. If larvae exhibit this habit under such conditions, it might be that

ascending blades of grass in the wild is to escape humid conditions in the lichen mat. The high mortality rate of captive larvae might reflect adversely high humidity.

### Choice of pabulum

A number of pabula were offered to captive larvae, including all of the lichen species mentioned earlier in this text. Substitute pabula included decaying willow leaves, algal growths on bark and various encrusting lichens (*Xanthoria* spp.). All were accepted but with varying levels of enthusiasm. Of the lichen species, *Cladonia rangiformis* appeared to be most favoured when larvae were offered a choice. During the breeding programme, larvae were reared successfully on both *C. rangiformis* and decaying willow leaves. It must be stressed that although breeding captive larvae is possible, the mortality rate is extremely high. Parasitism amongst wild caught larvae was not observed but is recorded in larvae from Sandwich (Packer 1979). Cannibalism was not observed in my breeding stock but has been reported by G. Collins (pers. comm.).

### Overwintering

Whilst sweeping in mid-April 1983, a dead grass stem with some thirty larvae attached to its base as a tightly packed "nest" was obtained. This was at a time when very few larvae were to be found in the survey area and suggests that larvae may overwinter as a nest, dispersing after hibernation. However, Buckler (1889) records that eggs are laid loose (confirmed by eggs laid by a captive female). Larval nests would not seem to be consistent with loose egg laying which suggests that the larval nest taken in 1983 was an abnormality.

The larvae taken in mid-April measured between 4 and 5 mm in length but their exact instar was not determined because attempts to breed them out failed.

### Pupation

Captive larvae offered a mixture of lichens and mosses pupated in a silken cocoon amongst moss. The larval skin remains partially attached to the pupa and larval hairs are not included in the cocoon.

### Description of the pupa

Four pupae were obtained during the breeding programme for 1984 (fig. 2). These had the following dimensions:

Pupa	Length (mm)	Breadth at the widest point (mm)
i.	6.5	2.3 (pupa figured)
ii.	6.0	2.2
iii.	6.0	2.3
iv.	8.0	2.7

Two of the smaller pupae produced female moths and the larger one a male. In comparison with wild bred adults, bred specimens are fractionally smaller.

Shape and feature: Head rounded, tapering outwards to about mid-way down the wing cases. Tapering between this point and the end of the wing cases is gradual. The wing cases extend beyond two-thirds of the length of the pupa. Tapering between the wing cases and the anal end is more pronounced but the anal end is rounded.

Colour: Light brown initially, gradually darkening on the thorax and abdomen to a rich brown with darker markings. The head plate and wing cases remain light yellow-brown and translucent for some time but gradually darken to orange brown. The eyes are prominent and dark.

Pupal lustre: Shiny.

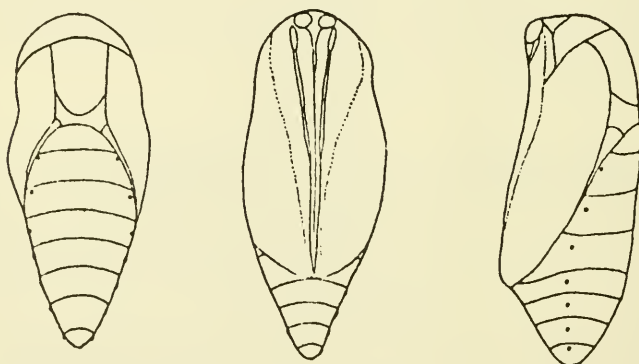


Figure 2. The pupa of *Eilema pygmaeola pallifrons*.

### Comments

The results of this breeding programme leave a number of unanswered questions which require further investigation. Circumstantial evidence points to larvae overwintering as a nest, a characteristic not consistent with known egg-laying habits. The reason for larvae ascending blades of grass at night has yet to be explained fully but further investigations into the hypothesis that this is related to humidity in the lichen mat will be made in 1985. Further investigation into the pabulum preferences of both sub-species is desirable since the sand dune and shingle ecosystems differ in structure and the pabula of sub-species *pygmaeola* may differ from sub-species *pallifrons*. It must be stressed that fatalities amongst captive larvae are extremely high. Consequently, it is not recommended that breeding for the cabinet be attempted, nor should it be encouraged.

### Acknowledgements

I am indebted to G. A. Collins for his observations on larval cannibalism and to R. D. Dunn for identifying lichen species collected from Dungeness. During drafting of this note, much useful criticism has been given by Dr. P. G. Morris.

### References

- Buckler, W., 1889. *The Larvae of the British Butterflies and Moths*. 3 Ray Society. London.  
Packer, L. D. M., 1979. The Larva of *Eilema pygmaeola pygmaeola*. *Entomologist's Rec. J. Var.* 91 : 9.
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BANKESIA CONSPURCATELLA (ZELL.) (LEP.: PSYCHIDAE) RECORDED IN SOUTH YORKSHIRE. — On 31st March 1985 at the edge of Thorne moors, South Yorkshire (VC63) Mr. M. Limbert noticed eight or ten small moths on thick sap covering a recently cut birch stump. He at first thought that the moths were stuck to the sap but closer inspection revealed that this did not seem to be the case. He collected two moths which he sent to me alive through the post.

I was convinced that they were *Bankesia conspurcatella* (Zell.) (*staintoni* (Wals.)) but as, according to the literature available to me, the species had occurred in Britain only in Hampshire at the end of the last century I prepared a genitalia slide from one of the moths and sent it to Rev. D. J. L. Agassiz who kindly confirmed my determination. In his reply Rev. Agassiz mentioned that there have been recent records from Kent and the Channel Islands, nevertheless the present record represents a considerable northward extension of the range of this, apparently elusive, moth. H. E. BEAUMONT, 7 Brampton Road, West Melton, Rotherham, South Yorkshire, S63 6AN.

ELACHISTA LITTORICOLA LE MARCHAND IN 1985. — The area where I first took this species (see *Ent. Rec.*, 95:65) was bulldozed and covered with gravel last year. On 4th June 1985, I visited the site with Mr. E. C. Pelham-Clinton and Dr. J. R. Langmaid. We were delighted to find a flourishing colony on the remaining grassy bank. We managed to catch their flight time — mid afternoon — and watched them climbing up grass stems of red fescue and flying freely. We have seen at least 40 specimens. — E. H. WILD, 7 Abbots Close, Highclidde, Christchurch, Dorset BH23 5BH, 8.vi.1985.